SC020500 Unit Outline

Scientific Description and Classification

Unit 5: Weather and Seasons

Abstract

In this earth science unit children learn about weather conditions, seasonal changes in Michigan's weather, and safety during severe weather. Children recognize that weather changes form day to day and determine the factors that affect weather, such as temperature, wind, precipitation, and clouds. They learn about the four seasons and the types of weather within each. Children use simple tools to measure weather conditions such as temperature, wind and rain. They observe and graph the daily weather and use this information to predict future weather conditions. Children discuss and record information about weather conditions and organize their observations and data on graphs and charts. They identify various types of severe weather and the safety precautions needed for each such as watch, warning, sirens and safety locations.

Lesson 1 – Weather Stories (SC020501)
Children identify their preconceptions about weather by drawing pictures of memorable weather events they have experienced and writing narratives. The teacher uses graphic organizer to record important descriptors of these events (temperature, wind, moisture, and other).

Lesson 2 – Reading Water Temperatures (SC020502)
Children use real thermometers to read temperatures of hot, warm, cool, and ice water. The class collects and discusses the collected data.

Lesson 3 – Reading Outdoor Temperatures (SC020503)
Children use thermometers to read indoor and outdoor temperatures and characterize those temperatures using weather words. The class begins a class weather chart by recording their measured outdoor temperature.

Lesson 4 – Wind (SC020504)
Children compare their temperature predictions to actual temperatures, and continue their class data. Children begin to study wind by using anemometers. They use wind descriptors to characterize the day's wind.

Lesson 5 – What Makes the Wind Blow? (SC020505)
Children explore the cause of wind, experimenting with warm air. They continue to compare predictions to actual readings in weather forecasting.

Lesson 6 – Water in the Weather (SC020506)
Children explore precipitation by developing models of evaporation and surveying precipitation in local weather. They continue to maintain their weather records.

Lesson 7 – Water Moves Around (SC020507)
Children observe and summarize the results of their experiments in evaporation and condensation. They observe a demonstration of cloud formation and relate their observations to weather phenomena.

Lesson 8 – Where Does the Water Come From? Where Does It Go? (SC020508)
Children apply their classroom experiences to the water cycle. They identify condensation, evaporation, and precipitation concepts to real world experiences.

Lesson 9 – Seasonal Weather (SC020509)
Children use graphic organizers to classify the typical weather for the seasons: winter, spring, summer, and fall. They expand their understanding to include violent weather conditions such as tornadoes and blizzards.

Lesson 10 – Seasonal Safety (SC020510)
Children explore violent weather conditions, beginning with a demonstration and information on tornadoes. They prepare posters of safety precautions for violent weather conditions.

Michigan Benchmarks

Manipulate simple devices that aide observation and data collection (I.1.E.3).
Tools: Various data collection tools suitable for this level, such as hand lenses, wind direction indicators, grids for sampling areas of the sky or landscape.

Real-World Contexts: Any suggested in Using Scientific Knowledge benchmarks for which students would design and/or conduct investigations.

Show how science concepts can be illustrated through creative expression such as language arts and fine arts (II.1.E.2).
Key Concepts: Poetry, expository work, painting, drawing, music, diagrams, graphs, charts.

Real-World Contexts: Explaining simple experiments using paintings and drawings; describing natural phenomenal scientifically and poetically.

Describe weather conditions (V.3.E.1).
Key Concepts: Atmosphere is a blanket of air around the earth, air is a substance. Air has temperature—cold, hot, warm, cool. Cloud cover—cloudy, partly cloudy; foggy. Precipitation—rain, snow, hail, freezing rain. Wind—breezy, windy, calm. Severe weather—thunderstorms, lightning, tornadoes, high winds, blizzards.

Tools: Thermometer, wind sock, rain gauge.

Real-World Contexts: Daily changes in weather, examples of severe weather.

Describe seasonal changes in Michigan's weather (V.3.E.2).
Key Concepts: Seasons and types of weather—fall, cool nights and warm days; winter—snowy and constantly cold, getting dark early in the evening; spring—warmer days, often rainy with thunderstorms; summer—hot days and warm nights, daylight lasting until late in the evening.

Real-World Contexts: Examples of visible seasonal changes in nature.

Explain appropriate safety precautions during severe weather (V.3.E.3).
Key Concepts: Safety precautions—safe locations, sirens, radio broadcasts, severe weather watch and warning.

Real-World Contexts: Examples of local severe weather, including thunderstorms, tornadoes and blizzards, examples of local community safety precautions, including weather bulletins and tornado sirens.

National Science Education Standards

Through the completion of the activities in this unit students and teachers can meet the following National Science Education Standards:

CONTENT STANDARD D: As a result of their activities in grades K-4, all students should develop an understanding of

- Properties of earth materials
- Objects in the sky
- Changes in earth and sky.